REMARKS

Appreciation is hereby expressed to Examiner Holmes and Supervisory Examiner Evanisko for the interview so courteously granted on March 10, 2008. Pursuant to that interview, Claim 1 has been amended to require an insulating layer formed on the electrode layer passing over the bending process portion "so as to prevent electrical leakage". Support for this amendment to claim 1 can be found in the Specification on page 2, lines 14-20. This amendment was discussed at the interview, and it is included in Claim 1 since it was thought to clarify the claims without raising any new issues or necessitating a new search. In addition, page 10 of the Specification has been amended to correct a typographical error. Support for the amendment to the Specification can be found in Table 1, page 13. The present amendment is deemed not to introduce new matter. Claims 1-6 and 9-18 remain in the application.

Reconsideration is respectfully requested of the rejection of Claims 1 and 6 under 35 U.S.C. 102(b) as anticipated by Grossman, et al.

The Issues

The final rejection raises a number of important issues concerning the propriety of the Examiner's interpretation of the references, and also the propriety of the Examiner's combination rejections as follows:

1. Whether the Examiner erred in interpreting the disclosure of the primary reference of Grossman, et al.

2. Whether the Examiner's combination of references make out a prima facie case of obviousness against the claims now in this case, and

3. Whether the Examiner's final rejection fails to consider objective evidence of secondary considerations, such as the unexpected results set forth in the specification and as now confirmed by the attached declaration of Mr. Tatsuya Ogawa.

The answer to these issues is believed to be in the affirmative with respect to the first and third issues, and in the negative with respect to the second issue. Each of these issues is discussed below.

The Law

MPEP 2141 indicates that objective evidence of secondary considerations such as unexpected results, are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the Examiner must evaluate the evidence. The weight to be accorded to the evidence depends on the individual factual circumstances of each case. *Stratoflex, Inc. v. Aeroquip Corp.*, 218 USPQ 871 (Fed.Cir. 1983); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81 (Fed.Cir. 1986), cert. denied, 480 U.S. 947 (1987). The ultimate determination on patentability is made on the entire record. *In re Oetiker*, 24 USPQ 2d 1443 (Fed.Cir. 1992).

MPEP 214303 requires that to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art". *In re Wilson*, 474 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596 (Fed.Cir.

1988).

The Facts In This Case

During the recent interview of March 10, 2008, it was urged that Grossman, et al. fail to disclose an electrode structure as now called for in the claims herein. The Examiner stated in paragraph 2, on page 2 of the instant Office Action, that Grossman, et al. disclose "an insulating layer with a dielectric material that has a glass transition temperature below 25 °C". The Examiner then concluded that the "non-conductive backing layer 12" of Grossman, et al. illustrated in Figs. 1-4 corresponds to an "insulating layer" including a dielectric material as called for in Claim 1 of the present application.

Applicants maintain that the nonconductive backing layer 12 of Grossman, et al. does not correspond to the insulating layer required by base Claim 1 herein.

This distinction can be easily seen by comparing Fig. 2 of the present application to Fig. 4 of Grossman, et al. In Fig. 2 of the present application, the insulating layer 2 is disposed on top of the electrode layer 1, adjacent the bending processed portions (see also page 3, lines 1-7 which describe this structure).

In contrast, Grossman, et al. teach in Fig. 4 that the "nonconductive backing layer 12" forms the support structure for the electrode, and corresponds or equates to the support 3 shown in Figs. 1 and 2 of the present application. Disposed atop the "nonconductive backing layer 12" of Grossman, et al. is support sheet 50, and disposed atop support sheet 50 is metal plate 16, which acts as an electrode layer. Therefore, it is clear from this analysis that Grossman, et al. do not disclose an insulating layer including a dielectric material having a glass transition temperature of 25 °C or below as called for in the claims herein.

This limitation in the claims is important in attaining the objects of the present invention. In particular, the present inventors found that coating the electrode layer with an insulating layer formed of a dielectric material having a glass transition temperature of 25°C or below, avoids the formation of cracks in the electrode layer and insulating layer adjacent bent portions of the electrode. The avoidance of these cracks is important since electrical leakage can occur at such cracks.

These results discovered by the inventors herein are described in tests and comparative tests found in the specification and summarized in Tables 1 and 2, on pages 13 and 15 of the specification. These tests and comparative tests are also described in the attached Declaration of Mr. Tatsuya Ogawa. In particular, it was found in these tests and comparative tests that providing an insulating layer with a glass transition temperature of 25°C or below resulted in fewer or no cracks at angled portions of the electrodes. Further, when using a most preferred insulating layer material having a glass transition temperature of minus 20°C and below, no cracks were formed in the angled portions of the electrode.

Further, as shown in Table 2, on page 15 of the specification, and as discussed in the Ogawa Declaration, including carbon in the dielectric material forming the insulating layer also reduces or eliminates cracks.

In summary, the Examiner's principal reference of Grossman, et al. fail to disclose the electrode structure required by the claims herein. In particular, Grossman, et al. fail to disclose or suggest a support, an electrode layer formed atop the support, and an insulating layer formed atop the electrode layer, wherein the insulating layer comprises a dielectric material having a glass transition temperature of 25°C or below.

Moreover, it is respectfully maintained that the claimed combination of elements herein have been demonstrated in the Specification and the attached Declaration of Mr. Ogawa (via comparative test data) to result in unexpected improvements. These improvements take the form of a reduction or entire elimination of cracks in the electrode structure, thus minimizing any electrical leakage.

It is therefore respectfully submitted that Grossman, et al. fail to either anticipate or render unpatentably obvious the electrode structure now called for in the claims herein. Consequently, the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is respectfully requested.

Reconsideration is respectfully requested of the rejection of Claims 2-5 and 9-18 under 35 U.S.C. 103(a) as being unpatentable over Grossman, et al. as applied to Claims 1 and 6-7, and further in view of Ikeda, et al.

The deficiencies of Grossman, et al. are discussed above.

In an effort to cure the deficiencies of Grossman, et al. the Examiner then relies upon the secondary reference of Ikeda, et al. However, Ikeda, et al. do not cure these deficiencies.

The Ikeda, et al. reference is concerned with a biosensor comprised of "an electrically insulating substrate, an electrode system formed on the substrate including a working electrode, a counter electrode and a third electrode used for detecting a liquid junction, and a reaction layer that is formed over at least the working electrode and the counter electrode" (see column 2, lines 39-44).

As asserted by the Examiner, Ikeda, et al. does teach that the electrodes can be formed of silver paste, carbon paste, or silver/silver chloride (see column 5, lines 21-24). However, Grossman, et al. fail to teach or suggest an electrode structure having an insulating layer

comprised of a dielectric material having a glass transition temperature of 25°C or below. On the contrary, that teaching or suggestion comes only from the present application, and constitutes an important element or aspect of the present invention.

In view of the deficiencies of Grossman, et al. and Ikeda, et al., it is believed that the Examiner's combination of references fails to render unpatentably obvious the present invention as claimed herein. Moreover, there is no teaching or suggestion in either of these references that they can be combined in the manner suggested by the Examiner. Consequently, the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of claims 2 and 8 (which has been previously withdrawn) under 35 U.S.C. 103(a) as being unpatentable over Grossman, et al. and further in view of Netherly (U.S. Patent No. 5,947,961).

The deficiencies of Grossman, et al. are discussed above.

The Examiner has acknowledged that Grossman, et al. fail to disclose the thickness and method of formation of the insulating layer. To cure this deficiency of Grossman, et al., the Examiner relies upon the secondary reference of Netherly. However, Netherly discloses biomedical electrodes, wherein the electrode is a dispersive electrode that alters the impedance characteristics of the patient's tissues to reduce edge effect (see column 2, lines 44-47). As illustrated in Fig. 2, the electrode includes a layer 26 of lossy dielectric material. The layer 26 can be formed from an ink or paint, and can be screen printed or sprayed in an appropriately shaped pattern onto the electrode 10 (see column 7, lines 28-35).

In contrast, the present invention provides an electrode structure comprising a support having bending processed portions, an electrode layer formed on the support, so as to pass over the bending processed portions, and an insulating layer formed on the electrode layer passing over the bending processed portions, said insulating layer including a dielectric material, *wherein the glass transition temperature of said dielectric material is 25°C or below.*

Grossman, et al. fail to teach or suggest such an electrode structure having an insulating layer *comprised of a dielectric material having a glass transition temperature of 25°C or below.* The present inventors unexpectedly discovered that when the insulating layer comprises dielectric materials having a glass transition temperature of 25°C or below, fewer or no cracks were formed in the insulating layer during the molding process. Neither Grossman, et al. nor Netherly teach or suggest this important feature of the present invention.

In view of the failure of both Grossman, et al. and Netherly to teach or suggest the claimed dielectric material having a glass transition temperature of 25°C or below, it is believed that the Examiner would be justified in no longer maintaining the invention. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of claims 1-18 under 35 U.S.C. 103(a) as being unpatentable over Kelly, et al. (U.S. Patent No. 6,219,569) and further in view of Grossman, et al.

Kelly, et al. disclose a disposable non-conducting flexible sheet incorporating a fixed array of electrical conducting strips emanating from a terminus that can connect to a standard electrocardiographic cable or telemetric unit. As the Examiner has recognized, Kelly, et al. fail to

disclose an insulator layer having a glass transition temperature of at least 25°C or below, and bending portions that are between 90 and 270 degrees.

The Examiner has attempted to cure these deficiencies of Kelly, et al. by relying on Grossman, et al. as a secondary reference. However, as discussed above, Grossman, et al. also fail to teach or suggest an electrode structure having an insulating layer including a dielectric material having a glass transition temperature of 25°C or below. Thus, neither of the Examiner's references teaches or suggests this important element or feature of the present invention.

In view of these deficiencies, it is believed that the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION

I hereby certify that this 15-page Amendment After Final in Docket No. MUR-041-USA-PCT, Serial No. 10/505,158, filed August 20, 2004, is being facsimile transmitted to the United States Patent and Trademark Office (Fax No. 571-273-8300) on May 22, 2008.

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